Some iconoclastic thoughts about those Polynesian rat bones at Anakena

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In April 1777, when Captain Cook was sailing northeastward from New Zealand on his third Pacific voyage, he came upon isolated, uninhabited Palmerston Island, an atoll, which he had discovered and named on his previous voyage. Being urgently in need of fodder for the cattle in his two ships, he sent four boats ashore to see what they could get. When they returned with plenty of 'scurvy grass', young coconuts and pandanus palms, Cook decided to remain at the island for a couple of days to get a good supply of coconuts for his men.

Having been ashore himself, Cook wrote in his journal that the only animals he had seen were 'Sea birds, Land crabs, lizards and a few rats'. He added: 'We found on shore some pieces of a Canoe and broken paddles, but saw no traces of inhabitants or any human being having been there before us' (Beaglehole 1967:94-5).

The surgeon/naturalist William Anderson thought the presence of 'small brown ratts' on the island 'pretty extraordinary' and 'perhaps difficult to account for' unless it was assumed that they had come in the canoe that was 'drove on the shore'. He added: 'Indeed, we might have concluded this to be the case from the vast number of Birds that were always seen hovering near it, which did not happen at the inhabited isles we pass'd' (Beaglehole 1967:851-2).

The question of how Palmerston Island acquired its rats and how other even more remote and isolated Polynesian islands acquired theirs in prehistoric times has suddenly become of interest with the discovery of bones of the Polynesian rat, *Rattus concolor*,[1] throughout a habitation site at Anakena on Easter Island's north coast. The bones possibly date back to about A.D.1000. The Norwegian archaeologist Arne Skjølsvold (1994:114-15) found them during excavations in 1986-88. To him, they indicate 'the presence of Polynesians on [Easter Island] from the time of the very first settlement at Anakena' because the rat 'must have been brought from somewhere in Polynesia' either deliberately or as an accidental stowaway in Polynesian canoes. 'On Easter Island', he said, 'this animal was obviously utilized as a food supplement'.

The notion that rats were dispersed in prehistoric Polynesia either deliberately—'trussed up like pigs', as the naturalist Dick Watling (1986:7) has suggested—or as an accidental stowaway in Polynesian canoes has been endlessly repeated in popular and scientific literature on the Pacific. A recent exponent of this idea is Elizabeth Matisoo-Smith (1994), a biologist, who is currently writing a Ph.D thesis on the subject at Auckland University. However, even a cursory survey of the seemingly relevant factors suggests that the theory is highly improbable. A much more likely theory is that over hundreds of thousands of years—perhaps millions—the rat, as well as the ubiquitous lizard, succeeded in getting from one island to another without any human aid at all.

A factor of the first importance in the debate is that *R. concolor* is by no means peculiar to Polynesia. Its habitat extends from the Andaman Islands, through Burma, Laos, Vietnam, Thailand, Malaysia, Indonesia, the Philippines and New Guinea to island Melanesia, Micronesia and Polynesia. Because of this wide distribution and because it is THE village rat in New Guinea, the authors of a monograph on the rodents of New Guinea have urged that the term 'Polynesian rat' be discouraged because it gives 'a false impression of the rodent's origin and distribution' (Menzies and Dennis 1979:22-23).

Another frequently-reiterated claim—that *R. concolor*, a herbivore, is commensal with man (Roberts 1991)—is also misleading. As well as being found on uninhabited Palmerston Island by the first Europeans to land there, *R. concolor* was found by early Europeans on at least five other small, isolated, uninhabited islands in or close to the Polynesian Triangle that are most unlikely ever to have had any human inhabitants. These islands are Macauley (Kermadec Group), Gardner and Enderbury (Phoenix Group), Kure at the far western end of the Hawaiian chain, and Wake Island, which is 2000 nautical miles from Honolulu, 1300 from Guam and 1700 from Tokyo (Langdon 1964; Bryan 1942). On two other such islands—Rose Atoll, the easternmost of the Samoan islands, and Vostok Island in the Southern Line Group—the evidence suggests that *R. concolor* probably arrived there without human aid in post-European times (Mayor 1921; Langdon 1966).

Other isolated islands where *R. concolor* was thriving at the time of their European discovery, although they had no human inhabitants then, were Norfolk, Pitcairn and Henderson Islands plus several in the Phoenix and Line Groups (Meredith *et al* 1985; Moerenhout 1837:I:55; Fosberg *et al* 1983; Bryan 1942). Although people had certainly lived on these islands in earlier times, it is simply impossible to say whether the rats arrived there with them, before them or after them.

Palmerston Island, which lies 200 miles NWW of Aitutaki and 270 miles NW of Rarotonga, seems ideally situated to collect floating vegetable matter, such as coconuts, and other flotsam. Fifteen years after Cook's visit, Captain Edwards of HMS *Pandora* put into it in search of the Bounty mutineers. His hopes were raised when the Bounty's driver yard was found on the beach. But it had, in fact, drifted there from Tupuai, some 900 miles SE, where the mutineers had tried to establish a settlement about 18 months earlier. A derelict double canoe, unlike those of the Society Islands, was also found (Thomson 1915:43-44; Rawson 1963:78-79; Rutter 1935:124).

In 1797, when William Wilson, chief officer of the ship

Duff, landed on Palmerston, he, too, saw the remains of a double canoe. Not knowing of the *Pandora's* visit, he assumed it to be the one that Cook had seen. He also saw some rats which set him wondering 'how or by what means' they could have got there. The idea that they might have arrived in the canoe, but without any people on board, seems not to have occurred to him. However, he thought there were two good reasons why they were most unlikely to have arrived in the canoe with people. One was that such a vessel afforded 'hardly a place of concealment for them'. The other was that as the canoe's crew would probably have suffered greatly from hunger, it was 'absurd to think' that they would not have searched the vessel for 'every hidden morsel', and, on finding a rat, would have spared it. Wilson therefore concluded that Palmerston's rats must have drifted there 'on some whole tree or root' in which they were sheltering when it was 'torn up by some tempest' (Wilson 1799:94-5).

The idea that the Pacific's rats got about on driftwood also occurred to Charles Pickering (1895:59), a naturalist with the United States Exploring Expedition, who found *R. concolor* on uninhabited Enderbury Island, in the Phoenix group, in 1840. Driftwood on the island's western rim included trees with trunks up to 50 and 60 feet long and two to three feet in diameter. Charles Wilkes (1845:III:371), the expedition's commander, thought the trees must have drifted there from the 'more western islands', presumably New Ireland, New Britain and the Solomons, some 2,000 miles away. As for the rats, it seemed to Wilkes that they had subverted 'the natural order of things' by building their nests on tussocks of grass, about 18 inches to two feet high, while those of the birds occupied the ground. This would seem to suggest that the rats had been on Enderbury for a long time.

Herpetologists believe that the iguana, *Brachylophus fasciatus*, which is widely distributed in Fiji and Tonga, arrived there from northwestern South America by a raft of some kind some six million years ago. The distance is more than 6,300 miles. John Gibbons (1981), who discovered a long-established, but previously unknown species of iguana in Fiji in 1979, took a particular interest in trying to determine how such creatures could have crossed long stretches of ocean. He noted, for example, that in March 1980, huge rafts of vegetation as large as two-storey houses were washed down the Navua River on Viti Levu, Fiji, when 60 cm of rain fell in a 24-hour period. The major element in the rafts were entire bamboo 'trees', *Bambusa multiplex*, tightly bound together and highly buoyant.

On most inhabited Polynesian islands at the time of European contact, *R. concolor* was a troublesome pest. The people abhorred eating it and went to considerable pains to trap it and prevent it from getting at their food (e.g. Te Rangi Hiroa 1930:80,438, 526; Oliver 1974:278). On Tupuai, according to James Morrison, the Bounty's bo'sun's mate, rats ran over the people 'in droves' all night as they slept (Rutter 1935:67). The naturalist Anders Sparrmann (1953:97), a companion of Captain Cook on his second voyage, claimed that the Tahitians had to wrap their feet in cloth at night so that the rats would not nibble at their toes! Prehistoric islanders for whom the rat was a pest and who did not eat it are most unlikely to have carried it deliberately on their voyages. On the other hand, such people would surely have killed or thrown overboard any rats that revealed themselves as stowaways during a voyage. Hence, the common assumption that the misnamed Polynesian rat reached the far-flung islands of Polynesia as a purposely-carried passenger or as an accidental stowaway seems improbable *a priori*. In any case, no ethnographic or traditional evidence is known that supports these ssumptions.

As already mentioned, *R. concolor* was on both Pitcairn and Henderson Islands at the time of European contact. It was also in vast numbers on neighboring Mangareva (Laval 1968:23). These islands are from 1,200 to 1,600 miles west of Easter Island and are the nearest places from which rats could have reached it. In winter, the winds and currents in their latitude are from west to east and sometimes favor exceedingly fast voyages. In July 1851, for example, the American whaler Navigator (Captain George Palmer) covered the distance from Pitcairn to Easter in only seven days, having made a similar voyage in the previous year in nine (Langdon 1984:25,206).

Whether driftwood or a natural raft would travel faster or slower in the same circumstancs is unknown. However, in 1774, Cook speculated that the Easter Islanders' canoes might have been made from driftwood because they contained planks that were much wider and longer than any tree found on their own island (Beaglehole 1961:356). Moreover, it seems significant that the term for 'firewood' in Rapanui is *hukahuka,* a word which, in other Polynesian languages, means 'foam', 'sea spray', 'surface of the sea', etc. (Pollex 1991).

If it is argued that *R. concolor* could not have reached Easter Island on driftwood or some other natural raft, then the same argument must be advanced in relation to its two species of lizard, *Ablepharus boutonii* and *Lepidodactilus lugubris.* On the other hand, if the rats and lizards are assumed to have arrived there without human aid, and if it is also assumed that the island's first settlers were American Indians, then the fact that the islanders ate rats as far back as A.D.1000 can be readily explained.

The point is that in much of South America, including Ecuador and Peru, another small, herbivorous rodent, the cavy or Guinea pig, has long been a culinary item (Grzimeck 1975:II:441). Hence, immigrants to Easter Island from that part of the world would almost certainly have had no compunction about eating a similar animal of similar habits. However, a canoeload of Polynesian castaways with a long tradition of treating rats as pests and of not eating them are unlikely to have changed their attitude towards them on reaching a new island, especially if other food such as fish, shellfish and seabirds was available. Only in two places in Polynesia other than Easter Island are the islanders said to have eaten the rat in prehistoric times. One was Mangaia, the southernmost island in the Cook Group; the other was New Zealand (Te Rangi Hiroa 1974:102-6). However, as American Indians from Easter Island could well have been Mangaia's

first settlers, and as New Zealand might have been a haven for ancient castaways from Mangaia, the tradition of rat-eating in those two places possibly had a common origin. Three items of evidence support the notion that Mangaia was settled from Easter Island in early times:

(1) Archaeological remains of the American sweet potato, *Ipomoea batatas,* have been found on Mangaia dating back to about AD 1000. This is the earliest radiocarbon date yet established for the plant in Polynesia (Hather and Kirch 1991). However, Easter Island, which is thought to have been settled in the first millenium of the Christian era, seems likely to have been the plant's point of entry in Polynesia, and therefore the ultimate source of Mangaia's sweet potatoes (Langdon 1995).

(2) On Mangaia, the mummification of the dead was evidently still practised in early post-European times, as it certainly was in western South America. In the Tiahuanaco region of South America, the mummies were venerated in stone structures called *chullpa*. Similiar structures on Easter Island called *tupa* in which human bones have been found suggest that Easter Islanders of South American origin once observed the same practice (Langdon 1994). Hence, the practice of mummification and the sweet potato may have been carried to Mangaia by the same people.

(3) Both the Rapanui and Mangaian languages contain words that are unknown in other Polynesian languages (Langdon and Tryon 1983:45-6; Christian 1924:3).

Possible evidence for an ancient link between Mangaia and New Zealand includes the fact that several Mangaian and New Zealand Maori plant names are either exclusively cognate or occur, in addition, only in the languages of Mangaia's near neighbors (Pollex 1991, Whistler 1990).

A story that William Wyatt Gill (1876), an early Protestant missionary on Mangaia, told about *R. concolor* on that island succinctly demonstrates the point that the foods people eat and the manner in which they treat the remains of the dead depend largely on custom and religious injuction. Gill wrote:

> One morning, some lads climbing up some high rocks dislodged a large stone, and so exposed a mummy cave. The mummy was in admirable preservation, but there was a hole in his side, out of which some little rats were peeping. A rat-nest had been made where the heart had been!
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> The proverb, 'Sweet as a rat', survives in Mangaia to this day, although the adults of this generation have given up the disgusting practice of rat-eating. The Rarotongans revile the natives of Mangaia as the rat-eating Mangaians. I recollect, in 1852, being several times asked, 'Will Jehovah be angry with us if we eat rats?' 'Why?', I asked in astonishment, 'do you ask this?' 'Because we have been reading in Leviticus that rat-eating is forbidden' was the reply.

Perhaps this brief excursion into the realm of the misnamed Polynesian rat will serve to demonstrate that the discovery of its bones at Anakena can scarcely be advanced as proof that it reached the island with Polynesians or that the people who ate it were Polynesians. The only rat remains that could positively do that would be an assemblage found in association with some undeniably Polynesian item, such as, say, a fossilized taro tuber. The two coral files that have been found with rat bones, and which are said to resemble coral files of the Marquesas Islands, scarcely measure up. After all, how many ways are there of making a file from a piece of coral? And how can one prove that such an implement, or the notion of making it, travelled from west to east rather than from east to west? ❑

Note:

1. The so-called Polynesian rat is usually described as *Rattus exulans*, this being one of the *Rattus concolor* group.

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